

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A mutant Rhabdovirus having one or more mutation in a gene encoding a protein involved in blocking nuclear transport of mRNA or protein in an infected cell, wherein said one or more mutation results in the mutant Rhabdovirus having a decreased ability to block nuclear transport of mRNA or protein when compared to the wild-type virus.
2. The mutant Rhabdovirus according to claim 1, wherein said one or more mutation is in the gene encoding the matrix (M) protein.
3. The mutant Rhabdovirus according to claim 2 that is a mutant vesicular stomatitis virus (VSV).
4. The mutant VSV according to claim 3, wherein said one or more mutation is M51R, M51A, M51-54A, Δ M51, Δ M51-54, Δ M51-57, V221F, S226R, Δ V221-S226, M51X, V221X, S226X, or a combination thereof.
5. The mutant VSV according to claim 3, wherein said one or more mutation is a double mutation selected from the group of: M51R/V221F; M51A/V221F; M51-54A/V221F; Δ M51/V221F; Δ M51-54/V221F; Δ M51-57/V221F; M51R/S226R; M51A/S226R; M51-54A/S226R; Δ M51/S226R; Δ M51-54/S226R, and Δ M51-57/S226R.
6. The mutant VSV according to claim 3, wherein said one or more mutation is a triple mutation selected from the group of: M51R/V221F/S226R; M51A/V221F/S226R; M51-54A/V221F/S226R; Δ M51/V221F/S226R; Δ M51-54/V221F/S226R and Δ M51-57/V221F/ S226R.
7. The mutant Rhabdovirus according to any one of claims 1, 2 or 3, wherein said one or more mutation further results in a modulation of the interaction of the M protein with mitochondria in a host cell.

8. The mutant Rhabdovirus according to any one of claims 1, 2 or 3, wherein said mutant Rhabdovirus is capable of triggering the production of one or more cytokine in an infected cell.
9. A viral vector comprising a mutant Rhabdovirus having one or more mutation in a gene encoding a protein involved in blocking nuclear transport of mRNA or protein in an infected cell, wherein said one or more mutation results in the mutant Rhabdovirus having a decreased ability to block nuclear transport of mRNA or protein when compared to the wild-type virus.
10. The viral vector according to claim 5, further comprising a heterologous nucleic acid.
11. A vaccine vector comprising a mutant Rhabdovirus having one or more mutation in a gene encoding a protein involved in blocking nuclear transport of mRNA or protein in an infected cell and a heterologous nucleic acid encoding one or more antigen, wherein said one or more mutation results in the mutant Rhabdovirus having a decreased ability to block nuclear transport of mRNA or protein when compared to the wild-type virus.
12. A vaccine adjuvant comprising a mutant Rhabdovirus having one or more mutation in a gene encoding a protein involved in blocking nuclear transport of mRNA or protein in an infected cell and optionally a pharmaceutically acceptable carrier, said mutant Rhabdovirus being capable of triggering the production of one or more cytokine in an infected cell, wherein said one or more mutation results in the mutant Rhabdovirus having a decreased ability to block nuclear transport of mRNA or protein when compared to the wild-type virus.
13. A selective oncolytic agent comprising a mutant Rhabdovirus having one or more mutation in a gene encoding a protein involved in blocking nuclear transport of mRNA or protein in an infected cell and optionally a pharmaceutically acceptable carrier, wherein said one or more mutation results in the mutant Rhabdovirus having a decreased ability to block nuclear transport of mRNA or protein when compared to the wild-type virus.

14. A pharmaceutical composition comprising a mutant Rhabdovirus having one or more mutation in a gene encoding a protein involved in blocking nuclear transport of mRNA or protein in an infected cell and a pharmaceutically acceptable carrier, wherein said one or more mutation results in the mutant Rhabdovirus having a decreased ability to block nuclear transport of mRNA or protein when compared to the wild-type virus.
15. An immunogenic composition comprising a mutant Rhabdovirus having one or more mutation in a gene encoding a protein involved in blocking nuclear transport of mRNA or protein in an infected cell and a pharmaceutically acceptable carrier, said mutant Rhabdovirus being capable of triggering the production of one or more cytokine in an infected cell, wherein said one or more mutation results in the mutant Rhabdovirus having a decreased ability to block nuclear transport of mRNA or protein when compared to the wild-type virus.
16. Use of the mutant Rhabdovirus according to claim 8 as an additive for pharmaceutical preparations of viruses to protect against virulent revertants arising in said preparation.
17. Use of the mutant Rhabdovirus according to claim 8 in the treatment of a disease or disorder that can be alleviated by cytokine release.
18. The use according to claim 17, wherein said disease or disorder is cancer, bacterial infection, viral infection or fungal infection.
19. Use of the viral vector according to claim 10 for delivery of said heterologous nucleic acid to a subject in need thereof.
20. A kit comprising one or more containers and a mutant Rhabdovirus having one or more mutation in a gene encoding a protein involved in blocking nuclear transport of mRNA or protein in an infected cell, wherein said one or more mutation results in the mutant Rhabdovirus having a decreased ability to block nuclear transport of mRNA or protein when compared to the wild-type virus.